



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,840	02/25/2004	Shoji Ikeda		2955

7590 08/08/2006

Patrick G. Burns, Esq.  
GREER, BURNS & CRAIN, LTD.  
Suite 2500  
300 South Wacker Dr.  
Chicago, IL 60606

EXAMINER
----------

BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
----------	--------------

1773

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/786,840

Applicant(s)

IKEDA ET AL.

Examiner

Kevin M. Bernatz

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,7,10 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,10 and 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Amendments to the specifications and claims 1, 2, 7 and 10, cancellation of claims 3 – 6, 8, 9 and 11 - 16, and addition of new claims 17 - 20, filed on May 18, 2006, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 2, 7 and 10 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a magnetic film comprising a saturated magnetic field,  $H_s$ , of 0.8 kA/m or more, does not reasonably provide enablement for a magnetic film possessing an anisotropic magnetic field of 0.8 kA/m or more. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. This rejection is maintained for the reasons of record as set forth in Paragraph No. 4 of the Office Action mailed on February 16, 2006.

***Claim Rejections - 35 USC § 102***

5. Claims 17, 18 and 20 are rejected under 35 U.S.C. 102(a) and/or (b) as being anticipated by Katada et al. (IEEE Trans. Mag., 38(5), 9/2002, 2225 – 2227), as evidenced by Intermetallic Compounds, Volume 4 (Pub. John Wiley & Sons, 2000, pages 31 – 33).

Katada et al. and Intermetallic Compounds is relied upon as described in Paragraph 8 of the Office Action mailed February 16, 2006 (where the Examiner notes that claim 17 corresponds to old claim 1, claim 18 corresponds to old claim 2 and claim 20 corresponds to old claim 10).

Regarding the limitation of “two or more nonmagnetic layers” and “two or more magnetic layers”, the Examiner notes that Katada et al. disclose structures meeting applicants’ claimed limitations (*Abstract, Figure 5; and last 3 Paragraphs*).

6. Claims 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwasaki et al. (U.S. Patent No. 5,587,026).

Iwasaki et al. is relied upon as described in Paragraph 9 of the Office Action mailed February 16, 2006.

Regarding the limitation of “two or more nonmagnetic layers” and “two or more magnetic layers”, the Examiner notes that Iwasaki et al. disclose a structure meeting applicants’ claimed limitations (*Figure 21, elements 32 and 33; example 8; and col. 14, lines 52 – 61: where the Examiner notes that the present claims do not recite the structural relationship between the non-magnetic and magnetic layers so that the two*

*intermediate 32 of Iwasaki et al. read on the limitation of "two or more nonmagnetic layers").*

Regarding claim 18, Iwasaki et al. is relied upon as described in Paragraph 9 of the Office Action mailed February 16, 2006.

7. Claims 1 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Saito et al. (U.S. Patent No. 5,304,975) as cited in Paragraph 10 of the Office Action mailed February 16, 2006.

Regarding the amended limitations in claim 1, Sato et al. disclose non-magnetic materials meeting applicants' claimed limitations (*col. 7, lines 46 – 56*)

Regarding claim 17, Saito et al. disclose stacking a plurality of magnetic and non-magnetic layers (*col. 7, line 3 bridging col. 8, line 11*).

### ***Claim Rejections - 35 USC § 103***

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki et al. as applied above, and further in view of Osaka et al. (U.S. Patent No. 6,063,512).

Iwasaki et al. is relied upon as described above.

Regarding the limitations of claim 18, both Iwasaki et al. and Osaka et al. are relied upon as described in Paragraph 14 of the Office Action mailed February 16, 2006.

Art Unit: 1773

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki et al. as applied above, and further in view of Kamiguchi et al. (U.S. Patent No. 6,303,218 B1) and Inoue et al. (U.S. Patent App. No. 2002/0187565 A1).

Iwasaki et al. is relied upon as described above.

Regarding the limitations of claim 19, Iwasaki et al., Kamiguchi et al. and Inoue et al. are relied upon as described in Paragraph 15 of the Office Action mailed February 16, 2006.

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki et al. as applied above, and further in view of Sun et al. (IEEE Trans. Mag., 36(5), 9/2000, 2506 – 2508).

Iwasaki et al. is relied upon as described above.

Regarding the limitations of claim 20, both Iwasaki et al. and Sun et al. are relied upon as described in Paragraph 16 of the Office Action mailed February 16, 2006.

11. Claims 2, 10, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. as applied above, and further in view of Osaka et al. ('512) and Sun et al. (IEEE Trans. Mag., 36(5), 9/2000, 2506 – 2508) for the reasons of record as set forth in Paragraph No. 17 of the Office Action mailed on February 16, 2006.

Art Unit: 1773

12. Claims 7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. as applied above, and further in view of Kamiguchi et al. ('218 B1) for the reasons of record as set forth in Paragraph No. 18 of the Office Action mailed on February 16, 2006.

13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katada et al. as applied above, and further in view of Osaka et al. ('512).

Katada et al. is relied upon as described above.

Regarding the limitations of claim 18, both Katada et al. and Osaka et al. are relied upon as described in Paragraph 12 of the Office Action mailed February 16, 2006.

14. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katada et al. as applied above, and further in view of Kamiguchi et al. ('218 B1).

Katada et al. is relied upon as described above.

Regarding the limitations of claim 19, Katada et al. and Kamiguchi are relied upon as described in Paragraph 13 of the Office Action mailed February 16, 2006.

***Response to Arguments***

**15. The rejection of claims 1, 2, 7 and 10 under 35 U.S.C § 112 – 1<sup>st</sup> Paragraph**

Applicant(s) argue(s) that since the language is used in the as-filed specification, the claim language is enabled. The Examiner respectfully disagrees.

The Examiner notes that the rejection is not whether there is literal support for the language in the claim, but whether the specification is enabled for one of ordinary skill to *make* the claimed invention. Given that the as-filed specification focuses exclusively on the saturated magnetic field in terms of controlling the property and is silent with regard to controlling or making a magnetic film having an anisotropy magnetic field of 0.8 kA/m or more (*e.g. Figures; specification page 4, lines 8 – 21; page 9, lines 19 – 27; page 12, line 14 bridging page 13, line 14; and Table on page 13*).

The Examiner notes that applicants' have support for films possessing uniaxial magnetic anisotropy, but not for "an anisotropy magnetic field of 0.8 kA/m or more".

**16. The rejection of claims 17 - 20 under 35 U.S.C § 102(b) and/or 103(a) – Iwasaki et al., alone or in view of various references**

Applicant(s) argue(s) that Cr has been removed from the list of elements for the non-magnetic layer and that "[u]nlike in the present invention, no purposes of the antiferromagnetic coupling are disclosed or suggested in the Iwasaki et al. reference", hence distinguishing the claims over the Iwasaki et al. reference (*pages 13 – 14 of response*). Applicants further argue that Iwasaki et al. do not disclose two nonmagnetic films (*page 14 of response*). The Examiner respectfully disagrees.



First, the Examiner notes the claim 17 still includes Cr. Second, the claims do not recite any antiferromagnetic coupling and applicants are reminded that an invention may be obvious if the prior art has different reasons for doing what the applicant has done. "It has long been held that a rejection under 35 USC 103 based upon a combination of references is not deficient solely because the references are combined based upon a reason or technical consideration which is different from that which resulted in the claimed invention." *Ex parte Raychem Corp.* 17 USPQ 2d 1417, 1424 (BPAI 1990). Cites *In re Kronig* 190 USPQ 425 (CCPA 1976); *In re Gershon* 152 USPQ 602 (CCPA 1967). Third, see the rejection of record for the disclosure in Iwasaki et al. regarding two magnetic and two nonmagnetic layers.

With regard to applicants' arguments directed to the reduced stress, applicants are invited to present evidence in the form of an executed declaration that the process disclosed by Iwasaki et al. (*i.e. the annealing*) fails to result in a product meeting the claimed limitations.

**17. The rejection of claims 1, 2, 7, 10 and 17 - 20 under 35 U.S.C § 102(e) and/or 103(a) – Saito et al., alone or in view of various references**

Applicant(s) argue(s) that Saito et al. fail to disclose a magnetic layer including Fe and Co (*page 14 of response*). The Examiner respectfully disagrees.

Saito et al. is clear that magnetic layers including Fe and Co are anticipatory subject matter (*col. 7, lines 24 – 25*).

With regard to applicants' argument directed to the two nonmagnetic layers, the Examiner notes that *comparative* examples are just that, *comparative*. They are not part of the disclosed Saito et al. invention, so arguing that they fail to disclose the claimed subject matter is moot.

**18. The rejection of claims 1, 2, 7, 10 and 17 - 20 under 35 U.S.C § 102(a), 102(b) and/or 103(a) – Katada et al., alone or in view of various references**

Applicant(s) argue(s) that Katada et al. do not disclose embodiments reading on the claimed limitations since Katada et al. fails to teach antiferromagnetic coupling (*page 11 of response*). The Examiner respectfully disagrees.

As noted above, the present claims do not require antiferromagnetic coupling, hence arguments that Katada et al. fails to disclose such coupling is moot.

Regarding applicants' additional arguments, as noted above, applicants' are invited to present evidence regarding the lack of the stress being within the claimed range (*page 12 of response*). It also appears that applicants deem that Katada et al. does not disclose a multilayered structure of NiFe(Cr)/FeCo/NiFe(Cr)/FeCo/NiFe(Cr). This is incorrect, since Katada et al. clearly teach that NiFe and NiFe(Cr) are functional equivalents and, while they may only explicitly disclose a [NiFe/CoFe]<sub>n</sub> multilayer, they are deemed to provide sufficient specificity to also anticipate a [NiFeCr/CoFe]<sub>n</sub> multilayer given the explicit teaching of the interchangeability of NiFe and NiFeCr.

***Conclusion***

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Applicants' amendment resulted in embodiments not previously considered (i.e. removal of "Cr" from claim 1 and new claims 17 - 20) which necessitated the new grounds of rejection, and hence the finality of this action.

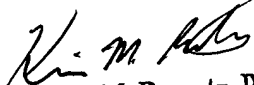
20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1773

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB  
August 1, 2006

  
Kevin M. Bernatz, PhD  
Primary Examiner